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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LOUIS A. SERAFIN JR, LEE ALLEN STOUSE, LEO A. WHITESIDE, and NICHOLAS H. BURLINGAME

Appeal 2013-008790
Application 12/584,482
Technology Center 3700

Before: EDWARD A. BROWN, JILL D. HILL, and LEE L. STEPINA, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision to reject claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).[1]

We REVERSE and enter a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

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[1] An oral hearing was conducted on November 17, 2016.

CLAIMED SUBJECT MATTER

The claims are directed to a metal/alloy coated ceramic. Claim 1, reproduced below, is representative of the claimed subject matter:

> 1. A coated ceramic comprising a fired ceramic body having a receiving surface that can serve as a substrate for a metal or metal alloy coating; and, on at least part of the receiving surface, the metal or metal alloy coating, wherein:
>
> the fired ceramic body with its receiving surface is a partially stabilized zirconia ceramic employing magnesium oxide as stabilizer;
>
> the metal or metal alloy coating is from a metal other than tantalum or a metal alloy other than of tantalum; and
>
> the coated ceramic has a static shear strength between the receiving surface of the ceramic body and the metal or metal alloy coating thereon of at least about 2,000 pounds.

Claims App.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Taylor	US 6,008,432	Dec. 28, 1999
Chamier	US 6,319,285 B1	Nov. 20, 2001
Serafin	US 2006/0025866 A1	Feb. 2, 2006

REJECTIONS

(I) Claims 1–4, 7–10, 13, and 14 are rejected under 35 U.S.C. § 103(a) as unpatentable over Chamier and Serafin.

(II) Claims 5, 6, 11, 12, and 15–20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Chamier, Serafin, and Taylor.

OPINION

Rejection (I)

The Examiner finds that Chamier teaches most of the features recited in claim 1, but the Examiner relies on Serafin to teach a ceramic body including magnesium oxide stabilized transformation toughened zirconia ("MgTTZ").[2] Final Act. 2 (citing Serafin ¶ 86). The Examiner also finds that the claimed static shear strength value is an inherent property resulting from the recited combination of materials. Final Act. 3–4.

Teaching Away

Appellants assert that "[Serafin] teaches that when PSZ [partially stabilized zirconia] stabilized with MgO is considered, tantalum is the metal coating." Appeal Br. 2. Citing *In re Grasselli*, 713 F.2d 731 (Fed. Cir. 1983), Appellants state, "[c]learly, Chamier [ ] and Serafin [ ] teach away from their combination just as did the references in *Grasselli* in light of the claimed subject matter. Therefore, no case of obviousness is established." Appeal Br. 2. Appellants also assert that "Chamier [ ] teaches away when species are taught, toward alumina in combination with a titanium based alloy, which *mechanically* holds onto roughened areas of the alumina, noting, too, that Chamier [ ] discloses that there is *no* chemical or metallurgical bond." Appeal Br. 2–3. In this regard, Appellants state, "teaching away does not require foreseeing the invention and warning

[2] Claim 1 recites "a partially stabilized zirconia ceramic employing magnesium oxide as a stabilizer."

against it. Rather, it encompasses the situation where, as here, the prior art taught away from one solution because it all taught a different solution." Appeal Br. 3 (internal citations omitted).

In response, the Examiner finds that the facts of the present case are different from those in *Grasselli* because, "[i]n the present case, there is no teaching in any reference of expressly excluding one of the claimed materials (or its equivalent) in combination with the other of the two claimed materials." Ans. 3. The Examiner asserts that the references do not teach away from the claimed invention, rather, they merely fail to anticipate the subject matter of claim 1, and this is not the same as teaching away from it. Ans. 3–4.

In reply, Appellants contend that titanium and tantalum have different chemical and physical properties. Reply Br. 2–3. Appellants also cite an article first submitted with the Reply Brief and titled "Do Tantalum and Titanium Cups Show Similar Results in Revision Hip Arthroplasty?" S. Mehdi Jafari, Cltn Orthop Relat Res. 458–465, Feb. 2010 (hereafter "Jafari"). Appellants further state, "[e]ven if the decision in [*Grasselli*], was not directly on point with the fact situation at hand, it is a useful guide to the improper picking and choosing that the Examiner did from references that do not have certain required elements and only one or two others." Reply Br. 2.

We find Appellants' arguments that the cited prior art teaches away to be unpersuasive. Appellants point to no portion of either Chamier or Serafin that would lead a person of ordinary skill in the art away from the arrangement recited in claim 1. As for the new evidence submitted with the Reply Brief, Appellants' submission of Jafari is untimely. *See* 37 C.F.R. § 41.41(b). Moreover, without referring to any specific portion of Jafari,

Appellants rely on this untimely submission for the proposition that, "[i]n orthopedic implants, for example, of the acetabular portion of the hip, Tantalum porous coated cups are reported to engender better bone ingrowth and hence less bone loosening and failure." Reply Br. 2. Even assuming, *arguendo*, that this proposition is correct, we do not find that this amounts to teaching away from the arrangement recited in claim 1. *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) ("A reference does not teach away [...] if it merely expresses a general preference for an alternative invention").

Appellants make similar arguments regarding the alleged teaching away for dependent claims 2–4 and 10 (*see* Appeal Br. 4), and we find these arguments to be equally unpersuasive. Appellants identify no portion of the cited references that qualifies as a teaching away from the subject matter recited in these claims. Rather, Appellants summarize the subject matter recited in these claims, identify a mere difference in the individual references applied by the Examiner, and allege this difference teaches away from the claimed inventions. *Id.*

Shear Strength

Appellants contend that the bond in Chamier "would result in an extremely low if not virtually nonexistent level of static shear strength between the ceramic and coating of metal or metal alloy, certainly nowhere near about 2000 pounds or more as required by claim 1." Appeal Br. 3. Appellants assert that the Specification supports a finding that the force recited in claim 1 is the result of chemical and/or metallurgical bonding. *See* Appeal Br. 3 (citing Spec. 7:8–10 and stating "[Appellants] hint at bonds and other forces, which are not of the garden variety mechanical gripping forces as disclosed in Chamier [ ], between the PSZ stabilized with MgO and

coated with metal or metal alloy."). Appellants argue that neither Chamier nor Serafin discloses "the excelling, surprising holding power of a PSZ stabilized with MgO coated with a metal or metal alloy of about 2000 lbs or more as in claim 1." Appeal Br. 3.

Regarding Appellants' arguments relating to static shear strength, the Examiner states: "Applicant's disclosure has not disclosed any method step or structure or even any combination of materials that is responsible for creating the claimed shear strength." Ans. 4. The Examiner asserts that "if there is any special process or structural feature that creates the static shear strength beyond what is inherent in the materials themselves or the process of plasma arc spraying, then Applicant has not disclosed it." *Id.*

In reply, Appellants argue, "[i]f the Examiner would speculate to support her rejections that the extraordinary holding power newly disclosed and claimed by the Appellants inherently results only from ordinary plasma spraying, let her find support for that hypothesis in the prior art, which she has not done." Reply Br. 3. Appellants assert, "experts have been confounded by such extraordinary holding power in a metal coated ceramic and the simple ways and means of providing for it such as described and claimed here." *Id.*

Claim 1 recites, in part, "a static shear strength between the receiving surface of the ceramic body and the metal or metal alloy coating thereon of at least about 2,000 pounds." Claims App. 1. Aside from claim 1, when Appellants' Specification discloses a value of 2,000 pounds, it refers to "holding force."[3] *See* Spec. 8 (stating "Extraordinary holding power of the

[3] Although there is also a reference to the 2000 pound capacity of an axial fatigue machine used in the testing performed on certain specimens (Spec.

coating to the ceramic can be provided. For instance, the metal or metal alloy coating may resist being pulled or sheared off the ceramic to a value of about 2,000 pounds (about 0.91 metric tons) or more of force."). Spec. 8:1–3.

The Specification includes a table in "Example 1" after the statement "[t]he following static shear strength results were obtained," and the table includes the heading "Max Load," under which values ranging from 2730 pounds to 3070 pounds are listed. Spec. 13–14. The table also includes the heading "Shear Stress," under which values ranging from 6179 psi (pounds per square inch) to 7198 psi are listed. *Id.* These sentences imply that "pounds" is a unit used to express load, and "pounds per square inch" is a unit used to express shear stress. After presenting the above-noted table, the Specification states, "the average *static shear strength* for these ten specimens was 6716 psi (472.3 kg/cm^2)." Spec. 14:5–6 (emphasis added). This statement supports a construction of the term "static shear strength" having units in terms of force divided by area.

The Specification provides another table, this time for Example 4, with a column labeled "Stress," under which are values ranging from 8152 psi to 11242 psi. Spec. 15–16. After this table, the Specification states, "[t]he average *shear stress strength* for these samples thus was 9426 psi (662.9 kg/cm^2)." Spec. 16:6 (emphasis added). There is no disclosure in either of the tables of a shear strength of 2000 pounds. *See* Spec. 14–16. Although claim 1 recites the static shear strength in the unit of pounds, in light of the Specification, it is unclear as to whether the shear strength refers, for example, to (i) the amount of force required to shear the receiving

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14:20–21), the value recited in claim 1 does not relate to the capacity of a testing machine.

surface of the ceramic body from the metal or metal alloy, or (ii) the amount of force *per unit area* required to shear the receiving surface of the ceramic body from the metal or metal alloy. Thus, it is unclear whether the shear strength recited in claim 1 depends on the amount of area in contact between the receiving surface of the ceramic body and the metal or metal alloy coating thereon. This ambiguity is underscored by Appellants' statements made during oral argument, during which Appellants indicated that the units in claim 1 should have been pounds per square inch.[4]

For the reasons discussed above, we conclude that claims 1–20 are indefinite. Thus, the prior art rejections must fall because they are necessarily based on a speculative assumption as to the meaning of the claims. "All words in a claim must be considered in judging the patentability of that claim against the prior art. If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious — the claim becomes indefinite." *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970). *See also In re Steele*, 305 F.2d 859, 862

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[4] *See* Oral Argument Transcript 3:11–16 (JUDGE STEPINA: "What is the strength a function of, the 2,000 pounds –" MR. RUDY: "Okay. Actually, strength is a measure of force divided by area. And in this particular case, we're looking at static shear strength, and the unit there is 2,000 or more pounds. Probably it should be 2,000 or more pounds per square inch. That's supported in the specification."); *see also* Oral Arg. Transcript 5:4–6 (JUDGE BROWN: "Is there any reason you're not saying psi in your claim? Why are you reporting it as pounds?" MR. RUDY: "Right, I did. It probably should have been reported as psi, yes."

(CCPA 1962) stating "[o]ur analysis of the claims indicates that considerable speculation as to meaning of the terms employed and assumptions as to the scope of such claims were made by the examiner and the board. We do not think a rejection under 35 U.S.C. § 103 should be based on such speculations and assumptions." Thus, we reverse Rejection (I), *pro forma*, because rendering a decision on whether it distinguishes over the cited references would require speculation as to the scope of the claimed subject matter. We note that this is a procedural reversal rather than one based upon the merits of the 35 U.S.C. § 103 rejection.[5]

Rejection (II)

For the same reasons discussed above with respect to Rejection (I), we reverse the Examiner's rejection of dependent claims 5–6, 11, 12, and 15–20 as unpatentable over Chamier, Serafin, and Taylor.

For the reasons discussed above, we enter a NEW GROUND OF REJECTION of claims 1–20 under 35 U.S.C. § 112, second paragraph, as indefinite.

DECISION

The Examiner's decision to reject claims 1–20 is reversed.

NEW GROUND OF REJECTION

Claims 1–20 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides "[a] new ground of rejection

[5] "Our decision is not be construed as meaning that we consider the claims on appeal to be patentable as presently drawn." *Steele*, 305 F.2d at 863.

pursuant to this paragraph shall not be considered final for judicial review."

Section 41.50(b) also provides:

When the Board enters such a non-final decision, Appellants, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.
>
> (2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

REVERSED; 37 C.F.R. § 41.50(b)